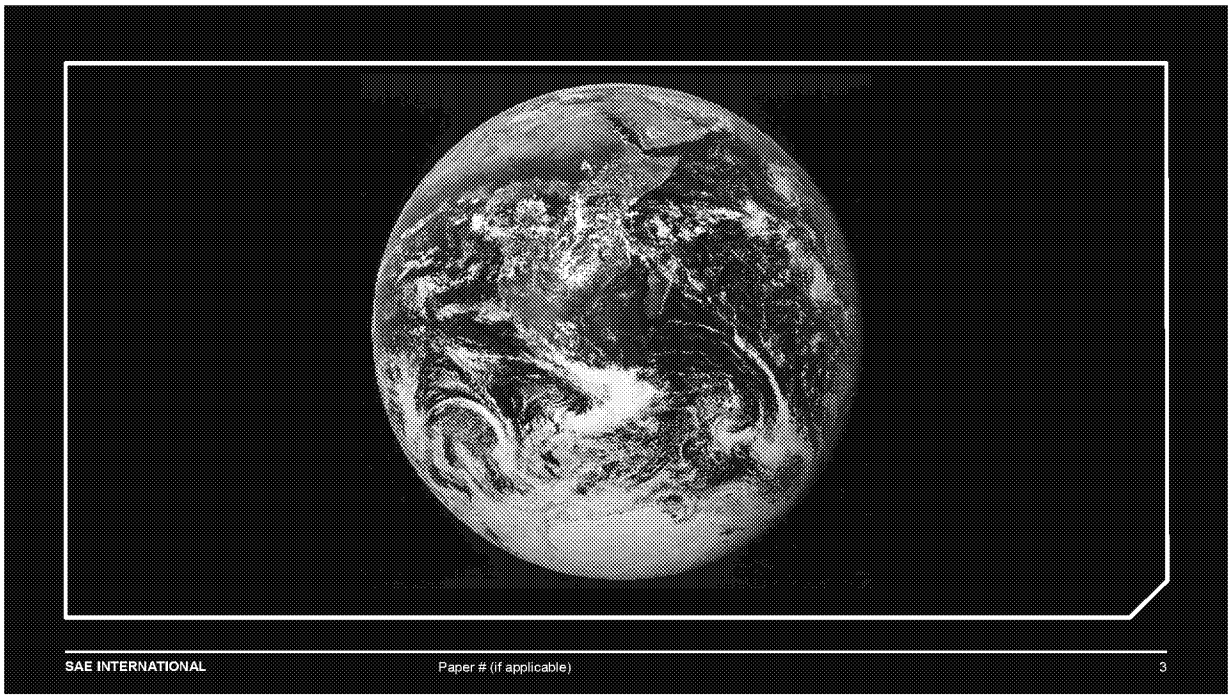
TRANSPORTATION SECTOR GHGS, EPA COMPLIANCE & OVERSIGHT, & INTERNATIONAL HARMONIZATION

Michael Olechiw
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

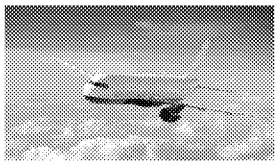
September 23, 2016

Overview

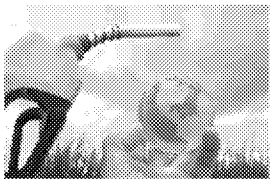
- ❑ Brief Update Transportation Sector and Climate Change
- ❑ EPA Emissions Compliance and Oversight
- ❑ International Harmonization Efforts

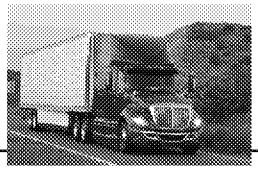


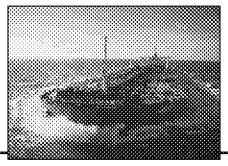
Transportation Sector Progress in the U.S.



- Light-duty 2012-2025
- Heavy-duty 2014 -2027
- Aircraft International CO2 std. and U.S. Endangerment Finding
- International Ocean-going Vessel Energy Efficiency Design Index
- Renewable Fuels Program on track



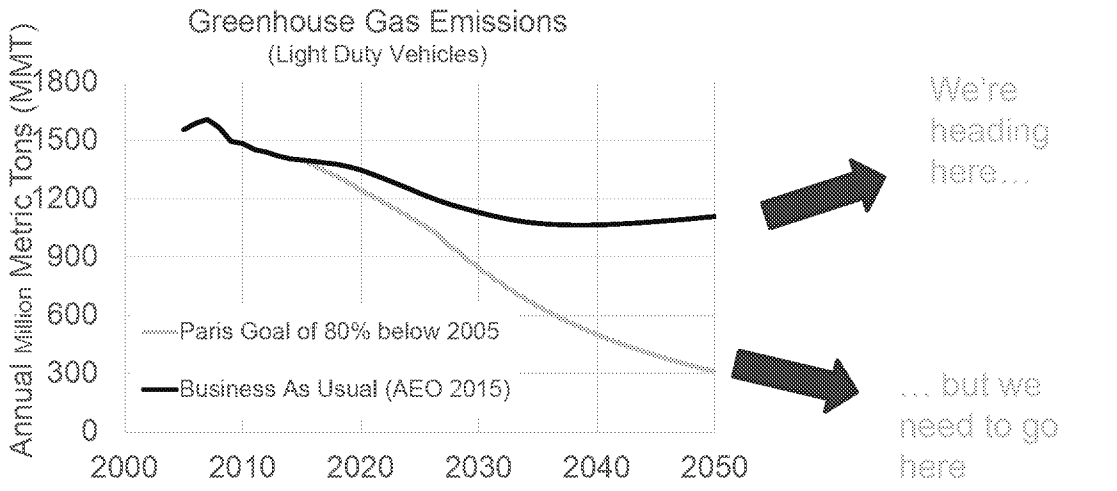




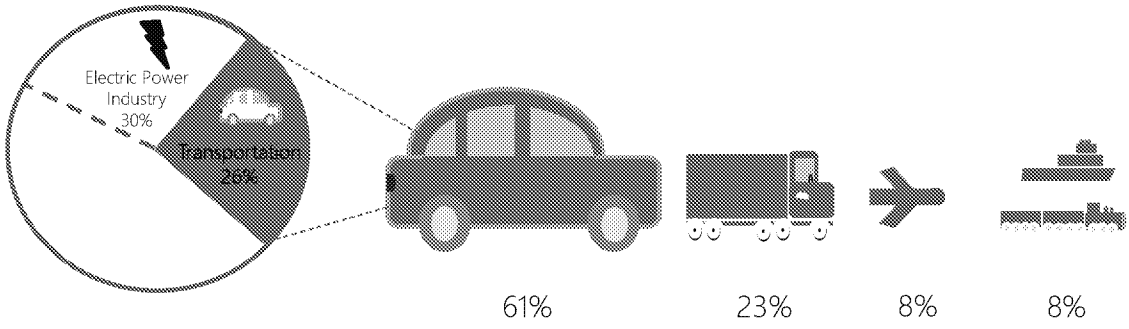
Light-duty Vehicle GHG Mid-term Evaluation

- The MTE includes the EPA commitment to re-look at the 2022-2025 GHG standards
- July of this year EPA/CARB/NHTSA published the Draft Technical Assessment Report
  - Public comments being accepted now
- Next Step for EPA is a Proposed Determination
  - A proposed decision regarding should GHG standards be strengthened, be relaxed, or remain the same
  - EPA will request public comment on the Proposed Determination
- Final Step for EPA is the Final Determination
  - Will occur no later than April 2018

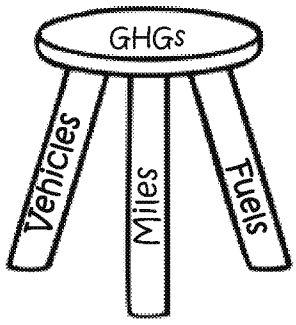
The Challenge beyond 2025 …



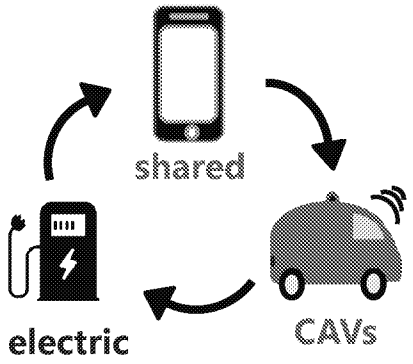
The transportation sector is the second largest carbon contributor



The industry is revolutionizing

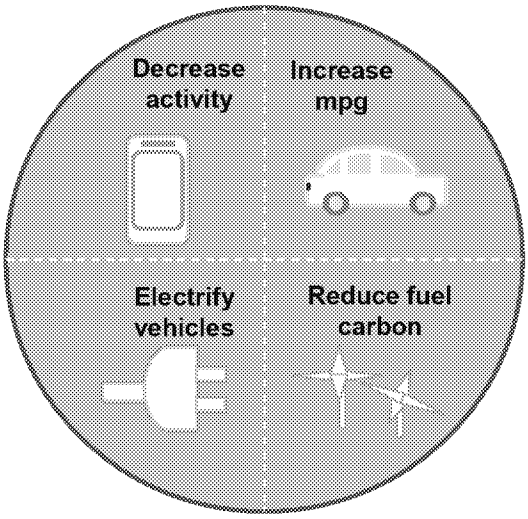


the past



the future

An integrated solution is needed to achieve large GHG reductions by 2050



Why does compliance matter?

- Emissions from transportation sources do immense harm to public health, welfare and the environment
- EPA estimates that in 2030 alone, transportation-source air regulations will prevent more than 38,000 premature mortalities and realize more than $380 billion in health and welfare benefits.
- These benefit estimates describe the harm that will come if the vehicles and engines produced fail to comply with our programs
- **EPA must ensure environmental compliance** to deliver these benefits

EPA Transportation Sector Compliance Obligations: Scope, Volume, and Complexity

Highway Vehicles and Engines

- Cars, trucks, vans, SUVs, motorcycles
- Heavy duty trucks, buses

Nonroad Engines, Vehicles, and Equipment

- Large diesel (construction equipment)
- Large gas (forklifts, compressors, air ground service equipment)
- Handheld utility engines (chainsaws, leaf-blowers, trimmers)
- Non handheld utility engines (lawnmowers, garden tractors)
- Marine (outboard/inboard motors, jet skis)
- Recreational vehicles (snowmobiles, ATVs, off-road motorcycles)
- Locomotives
- Ocean Going Vessels (OGVs)

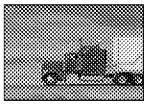
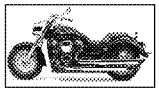
Fuels Regulations Apply To:

- Gasoline and diesel refiners and importers
- Renewable fuel producers and importers
- Fuel additive producers and importers
- Retail stations and terminal operators (oxygenate blenders)

EPA Transportation Sector Compliance Obligations: Scope, Volume, and Complexity

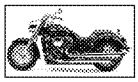
Model Year 1995 Certificates

Total = 610


Post 2014 (~4,000 per year)

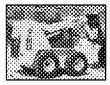

LDV – 464
ICI – 11
Alt Fuel - 205

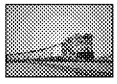

HMC – 380
OFMC - 58


HDDE - 57


Snowmobile - 26


NRCI – 506


Large SI - 88

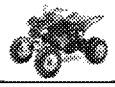

Locomotive - 58


Small SI – 984
Evap Components - 811


Marine SI - 87


HDGE - 10


Marine CI - 200


ATVs - 199

SAE INTERNATIONAL

EPA Transportation Sector Compliance Obligations: Scope, Volume, and Complexity

- **Fourth tier of emission regulations – necessarily complex after earlier tiers picked the low hanging fruit**
  - Required technical and policy innovation - EPA has designed flexible approaches that enable industry to comply
  - As a result industry and EPA implementation inherently more complex
- **Extraordinarily diverse regulated community**
  - Regulations must be flexible enough to work for huge conglomerates &mom-and-pop start-ups
- **New demands are adding to an already broad portfolio**
  - GHG, RFS authorities introduce new and different compliance challenges
  - New vehicle and fuel technologies demand specialized expertise
  - Increased flexibility for industry increases implementation complexity for EPA
  - Industries and manufacturers new to EPA regulation require staff-intensive compliance support
- **Globalization and foreign manufacturers present some special challenges**
  - Explosive growth especially from China

Achieving Emission Reductions

- It is **vehicle manufacturers, vehicle owners and repair technicians** that determine how much pollution comes from cars
- We accomplish our emission reduction goals through the minds and hands of manufacturers, owners and technicians
  - We want **manufacturers to design & manufacturer** cars to limit vehicle emissions to the greatest degree technology will allow for the full lifetime of the vehicles
  - We want vehicle manufacturers to **fix any defects in their products through recall and repair**
  - We want **vehicle owners and service technicians to properly operate and maintain vehicles**
- EPA compliance efforts need to focus on these audiences to best effect their actions

Holding Manufacturers Attention

- Require a license to produce every year
- Meet manufacturers with an equally capable technical team
- Work to genuinely understand manufacturer challenges and help solve legitimate problems
- Visibly hold them accountable when they fail

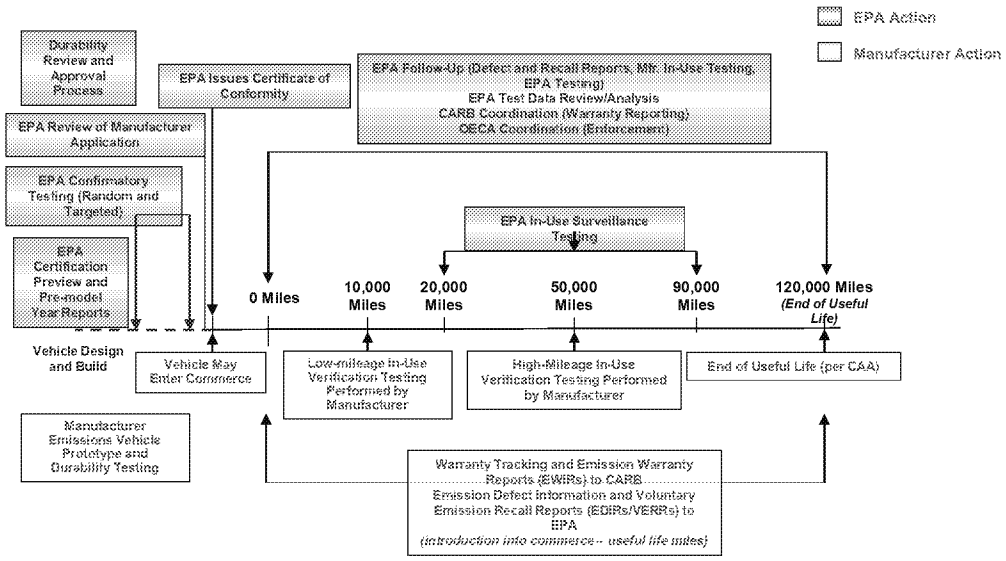
Recruit, train, and empower an effective compliance team

- Seek staff with a passion for protecting the environment and a passion for vehicle and engine technology
- Cultivate a diverse team with deep technical and policy skills
- Industry experience
- Active in professional societies (e.g., SAE, ASME)
- Empower the staff to develop new and innovative ways to accomplish their work

Avoid Regulatory Capture

- Regulatory capture occurs when a regulatory agency, created to act in the public interest, instead advances the commercial interests of the sector it is charged with regulating
- Avoiding regulatory capture is harder than it seems
- EPA serves the public interest better when our staff understands the regulated industry and works closely with that industry to implement our environmental programs
- The better we know the industry the better we can regulate it, but we must also recognize it is human nature to be sympathetic to individuals and companies we know well
- EPA must be ever vigilant to not let our own human nature allow us to fail in our responsibility to vigorously oversee the regulated industry

EPA Light-Duty Vehicle Compliance Program



18

EPA Compliance Mindset

- We can't do everything, and we can't be everywhere. We have to **make choices based on our assessment of environmental and programmatic risk**
- We empower our technical compliance teams to **innovate in ways that can maximize the environmental return for the public**
- **Visible compliance and enforcement are powerful levers** to deter noncompliance and demonstrate our resolve
- **Compliance data are powerful.** EPA must make it readily available so it can be leveraged to improve policy decisions, regulatory determinations, compliance auditing and program transparency

Risk assessment is fundamental to our planning and to the daily work of the EPA compliance team

CD Risk Assessment Cycles			
	Long-Term	**Annual**	**Our Culture**
Frequency	Every 3 Years	Every Fiscal Year	Every Day
Participants	Internal and External Stakeholders	EPA Staff and Management	Sector Leaders and Teams
Purpose	Prioritize EPA compliance resource investments based on relative risk	Annual Test Planning / Budget / Staffing within a Center/ Targetting	Myriad of individual decisions each day (certification and compliance)
Detail	Complete Detailed Risk Assessment with Rankings	Update long-term assessment; rank to target specific high risk concerns within each sector	Staff and Center Director's best judgment on environmental & programmatic risk
Planning Duration	6 months	3 months	daily
Output	Prioritized Relative Risks between Sectors	Prioritized Relative Risks within each Sector	Relative Risk between two choices

EPA is Using a 3-by-3 Compliance Testing Strategy

- **Cars, SUVs, and pickup trucks are tested at 3 times during their product life**
  - Preproduction
  - At the time of new product introduction
  - Vehicles in-use
- **Vehicles are tested for Certification & Compliance in 3 ways at any of the above 3 times**
  - EPA's Standard 5 Test Procedures (FTP, HWFET, US06, FTP20, SC03)
  - Special Tests in the Lab
  - Real World driving on public roads (a.k.a PEMS)

Real World Driving (a.k.a PEMS Testing – Not RDE)

- **The goal of EPA's Real World driving compliance tests are to identify if the vehicle behaves differently in the chassis dyno than on public roads during "Real World" driving**
  - The vehicle emissions system effectiveness and behaviors during everyday road driving should be *consistent* with emissions during EPA's 5 Test Procedures
- **Tools used during Real World testing include both/either PEMS or simpler EPA designed tools to ensure the emissions characteristics are consist on road and in the lab**
  - The goal is not that emissions are measured "on road" but rather that vehicle emissions behaviors are consistent between regular public road use and standard EPA tests.
- **EPA uses both PEMS and the flexibilities of the chassis emissions testing to ensure compliance with EPA emission standards**

International Harmonization Efforts

- **EPA has been engaged with the WP.29 and GRPE for almost 20 years**
  - Opportunity to share information
- **In addition, we have regular bilateral meetings with other countries including Japan and the European Commission.**
- **EPA has provided technical input in the development of several Global Technical Regulations**
- **United States abstained from voting on the WLTP because it was not comprehensive of all of the tests and test conditions that we currently employ.**
  - Many of these open issues are being addressed in WLTP Phase 2

International Harmonization Efforts

- **EPA believes that the current US test cycles are controlling under the majority of vehicle operating conditions**
- **International test procedure development has historically occurred very slowly and often results in the "lowest common denominator" solution**
  - Example is the latest evaporative emissions requirements being developed under WLTP that are less controlling than Tier 2
- **Industry influence on the development of international test procedures is often not balanced with public welfare**
  - Government representation does not have the technical expertise to push back
- **EPA will not adopt test procedures or accept test results that are not equal to our existing requirements.**

Thank you!